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Infrared-LEDs from Osram enable face recognition in Smartwatches

The two smallest biometric identification products to date expand Osram's photonics portfolio and open promising new areas of application

The more we rely on our digital companions, the more important the security of sensitive data on our Smartphone or Smartwatch becomes. Various methods of biometric identification provide the user with security and form a reliable "lock" against unwanted access. For manufacturers of mobile devices, the size of the individual components plays a central role in the design of their products. Osram's new infrared-LEDs (IREDs) SFH 4170S and SFH 4180S meet this demand by being the smallest biometric products by the Munich-based high-tech company.

Smartwatches are becoming more and more popular and can do more and more. In contrast to smartphones, where the screen can't seem to be big enough, smart watches focus on being smaller in size. The particularly compact dimensions of the specially developed Oslon P1616 package (1.6 mm x 1.6 mm x 0.85 mm) make the SFH 4170S and SFH 4180S the smallest Osram components for biometric applications. Compared to similar products today, the two IREDs require about 50 percent less space.

Despite the small dimensions, the IREDs uphold an outstanding power of 1150 mW at 1 A and a radiation intensity of 280 mW/sr. These characteristics are particularly important for 2D face recognition. This identification method focuses on two-dimensional features of the user's face, for example, the length of the bridge of the nose, the distance between the eyes or the distance from corner to corner of the mouth. In order to reliably compare the image stored in the system with the current picture, the infrared camera must be able to capture the best possible images – making homogeneous illumination of the face with an infrared light source a central aspect of this application.

Depending on where the IREDs are ultimately used, customers can choose between the 850 nm (SFH 4170S) or the 940 nm (SFH 4180S) version. While the SFH 4170S benefits from the very high sensitivity of the sensors in this wavelength range, the SFH 4180S avoids the "red glow" effect, which can be seen by the human eye and is particularly unpopular in consumer applications.

"Biometric identification will become an increasingly important part of our lives in the future," explains Arne Fleißner, Product Manager at Osram Opto Semiconductors. "With our two new IREDs, we are making space-saving integration into our customers' end devices much easier and are thus also helping to protect users' sensitive data."

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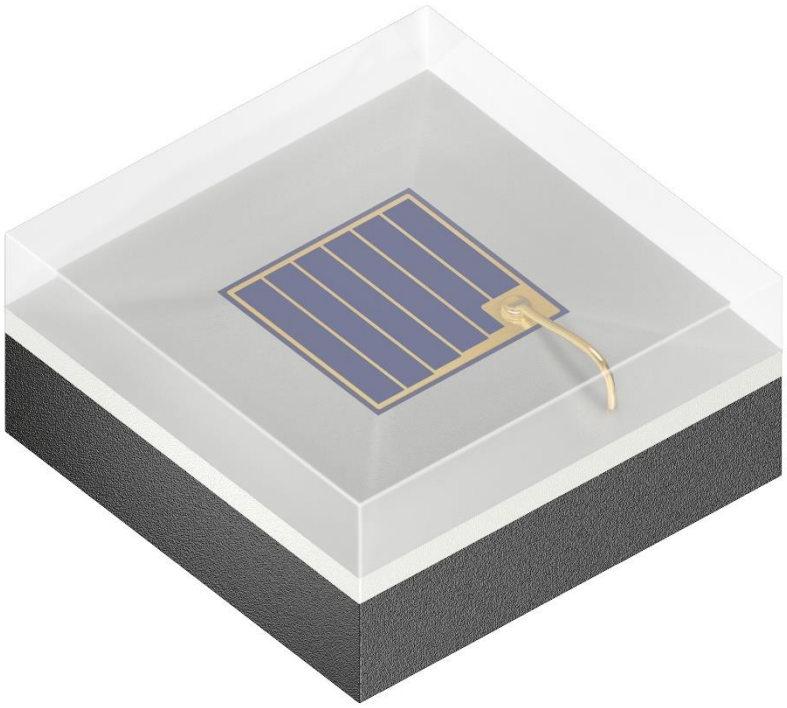

The SFH 4170S and SFH 4180S in the Oslon P1616 package are the smallest products for biometric identification to date and are particularly suitable for 2D face recognition. Picture: Osram

The extremely compact dimensions of the new infrared LEDs pay off especially when used in smartwatches.
Picture: Osram

ABOUT OSRAM

OSRAM, based in Munich, is a leading global high-tech company with a history dating back more than 110 years. Primarily focused on semiconductor-based technologies, our products are used in highly diverse applications ranging from virtual reality to autonomous driving and from smartphones to networked, intelligent lighting solutions in buildings and cities. OSRAM utilizes the infinite possibilities of light to improve the quality of life for individuals and communities. OSRAM's innovations will enable people all over the world not only to see better, but also to communicate, travel, work, and live better. As of the end of fiscal year 2018 (September 30), OSRAM had approximately 26,200 employees worldwide. It generated revenue of more than €3.8 billion from continued operations in fiscal year 2018. The company is listed on the stock exchanges in Frankfurt and Munich (ISIN: DE000LED4000; WKN: LED400; trading symbol: OSR). Additional information can be found at www.osram.com.